

From glowbugs@theporch.com Mon Oct 7 15:56:51 1996
Return-Path: <glowbugs@theporch.com>
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Date: Mon, 7 Oct 1996 15:51:02 -0500 (CDT)
Message-Id: <199610072051.PAA29980@uro.theporch.com>
Errors-To: conard@tntech.campus.mci.net
Reply-To: glowbugs@theporch.com
Originator: glowbugs@theporch.com
Sender: glowbugs@theporch.com
Precedence: bulk
From: glowbugs@theporch.com
To: Multiple recipients of list <glowbugs@theporch.com>
Subject: GLOWBUGS digest 315
X-Listprocessor-Version: 6.0c -- ListProcessor by Anastasios Kotsikonas
X-Comment: Please send list server requests to listproc@theporch.com
Status: 0

GLOWBUGS Digest 315

Topics covered in this issue include:

- 1) Handbook Power Transformer Leads ID
by WD6BOR@aol.com
- 2) Re: glass qrp
by "Brian Carling" <bry@mail1.mnsinc.com>
- 3) Regenerative Design
by fbsnyder@mail04.mitre.org (Forrest B. Snyder Jr)
- 4) Re: Re^2: Temperature Control and Thermal Drifts
by rdkeys@csemail.cropsci.ncsu.edu
- 5) Re: Re^2: Temperature Control and Thermal Drifts
by linscot@is.rice.edu (Steve Linscott)
- 6) Re: Regenerative Design
by rdkeys@csemail.cropsci.ncsu.edu
- 7) BA/GB net frolics this weekend
by rdkeys@csemail.cropsci.ncsu.edu
- 8) WTB 6L6's
by Guy Dragoo <gdrag@proedge.com>
- 9) BA/GB 1 Watte Challenge at Highe Midnighte
by rdkeys@csemail.cropsci.ncsu.edu
- 10) Re: glass qrp
by Jeffrey Herman <jherman@hawaii.edu>
- 11) Re: Regenerative Design
by "Claton Cadmus" <aplitech@Spacestar.Net>
- 12) Re: WTB 6L6's
by "Brian Carling" <bry@mail1.mnsinc.com>

Date: Sun, 6 Oct 1996 19:07:20 -0400
From: WD6BOR@aol.com
To: n4so@juno.com
Subject: Handbook Power Transformer Leads ID
Message-ID: <961006190718_537883948@emout10.mail.aol.com>

In response to a request for more information on identifying surplus transformers, here are the page numbers from the 1996 ARRL Handbook with more information of transformers as well as tubes.

Page 11.3 "How to evaluate unmarked transformers."

Page 24.7, Table 24.12 Power transformer lead color codes

Page 24.28-29 Transmitting tube specifications.

Page 24.30 EIA standard tube pin-outs.

The handbook has good basic information on everything from basic tube and transistor receivers and transmitters to information on basic circuit operation and design. This book is still my first recommendation for any new ham asking about a good book to buy to learn more about this hobby. I recently bought a 200 page 6" x 8" industry reference for nearly twice the \$38 the '96 Handbook costs, and consider it a bargain compared to some of the standard references I have to update every one to three years. Either support your local amateur radio retail outlet and buy it there or order one from the ARRL. It will be the best \$38 you'll spend.

Darrel, WD6BOR

Date: Mon, 7 Oct 1996 04:17:30 +0000
From: "Brian Carling" <bry@mail1.mnsinc.com>
To: glowbugs@theporch.com
Subject: Re: glass qrp
Message-ID: <199610071116.HAA11726@user2.mnsinc.com>

There has been a severe problem recently with many LISTS on the Internet.

APparently someone found a way to DISABLE a lot of te lists. They are just now beginning to get going again. This has been reported to me from various people on various lists. I noticed most of the lists I was on had a problem this past weekend, where the message flow either stopped completely (like this one) or

dwindled to a trickle compared to the normal rate.

I am sending this as a test. You MIGHT need to advise the recipients to get re-subscribed, or to look at the list and see if the addresses have all disappeared.

This message will also serve as a test to see whether it appears on glowbugs or not.

I see no new messages here in the past 24 hours or so.

Best regards - Bry
Brian Carling in Gaithersburg, Maryland, USA
bry@mnsinc.com
<http://www.mnsinc.com/bry/>

Date: Mon, 7 Oct 96 09:27:12 -0400
From: fbsnyder@mail04.mitre.org (Forrest B. Snyder Jr)
To: rdkeys@csemail.cropsci.ncsu.edu, glowbugs@theporch.com
Subject: Regenerative Design
Message-ID: <961007092710.25471@mail04.mitre.org.0>

Good Morning Bob et. al.

Thanks for the info on putting together a selective toob type regen. Since that posting, I've been poring over various old (Doerle) and more modern regen schematics and info in ARRL and other pubs. I have a couple of questions which I hope you and the other members of the list can answer.

1. Older schematics (Doerle) use three coils in the detector circuit: an antenna link, an input tank, and a tickler. More modern schematics use a single coil with taps for the antenna and tickler. (ARRL How to Become a Radio Amateur ca. 1959). I can see that the tapped coil design might be easier to construct, but does either design offer distinct advantages/disadvantages of these designs in terms of sensitivity, selectivity, and stability (S3)?
2. Regens are noted for radiating signal from the oscillating detector back to the antenna. Is there any way to eliminate this short of adding a tuned RF section in front of the detector? If not, is there any way to keep the amount of re-radiated signal down where it will offend no one?
3. How will the use of a tuned RF section in front of the detector affect receiver S3?
4. Some designs use a variable capacitor to control regeneration. Others use a variable resistor and control regeneration by varying detector plate voltage

- -- again, simpler and more repeatable construction. Both methods are mentioned in older ARRL handbooks. Are there any S3 performance advantages to either method?

5. Svetlana makes a nice little 6BM8 dual pack triode/pentode, and an equally neat 6AS7 dual triode -- both intended for high performance audio service. Spec sheets are available on the net at www.svetlana.com. Has anyone build a receiver around either of these tubes? (If not, I might like to try! -- It looks like they're just made to power a high-perfomance glow-bug receiver.)

Thanks in advance for the discussion. If there is enough interest, I'll be more than happy to archive the information and forward the archive to anyone with an interest.

Forrest B. Snyder, Jr.

N4UTY fbsnyder@mitre.org

"Radio in the rough!"

BC-348-R

Johnson Adventurer (Rock bound!) and a straight key

40 M Center-fed Zepp between two trees

Date: Mon, 7 Oct 1996 09:59:34 -0400 (EDT)

From: rdkeys@csemail.cropsci.ncsu.edu

To: ornitz@eastman.com

Cc: rdkeys@csemail.cropsci.ncsu.edu (), glowbugs@theporch.com

Subject: Re: Re^2: Temperature Control and Thermal Drifts

Message-ID: <9610071359.AA106042@csemail.cropsci.ncsu.edu>

Wonderful discussion, Barry. I missed those thermostats at Shelby, but may be able to make off with one of the XYL's old hairburners. Hopefully, the glowbuggites can see that there are both ivory tower and seat of the pants approaches to glowbugging vfos and that many directions can be taken to reach the same pinnacle of delight (glowbugging). I tend to be a seat of the pants type (why else play with Hartleys, etc), away from the test tubes. All it takes is a bit o' grey matter pondering, some occasional high level calculations, some occasional rules de thumb, a well stocked OT library, and a pile o' parts to play with.

Ahh, the true spirit of glowbugging!

73/ZUT DE NA4G/BOB UP

Date: Mon, 7 Oct 1996 09:20:04 -0500 (CDT)
From: linscot@is.rice.edu (Steve Linscott)
To: rdkeys@csemail.cropsci.ncsu.edu
Cc: glowbugs@theporch.com
Subject: Re: Re^2: Temperature Control and Thermal Drifts
Message-ID: <v01540b03ae7e76af75db@[128.42.14.170]>

Bob and the gang:

You guys are bringing back memories! During the Apollo program, I was an IBMer at Mission Control in Houston. One of our 6 IBM 360/Model 75's lived in a separate building, and performed the function of simulating the "real world". It pretended to be the world-wide data network, and fed input to the Real Time Computer Complex. It had a time standard in a temperature controlled oven. The oven failed, and since it was a custom job, delivery of a replacement was going to take 6 months. An enterprising engineer stuck a 40 watt light bulb in the oven, and we were up and running. A few months later a Lunar landing simulation started going awry, and we discovered that the light bulb had burned out! It was replaced, and 15 million dollars worth of computer equipment was happily simulating again!

73 de W5EGP

- Steve -

* Steve Linscott Divisional Consultant Natural Sciences *
* Rice University 6100 South Main Street Houston, Texas 77005-1892 *
* Phone: (713) 527-4985 FAX: (713) 527-6099 Email: linscot@rice.edu *

Date: Mon, 7 Oct 1996 11:13:17 -0400 (EDT)
From: rdkeys@csemail.cropsci.ncsu.edu
To: fbsnyder@mail04.mitre.org (Forrest B. Snyder Jr)
Cc: rdkeys@csemail.cropsci.ncsu.edu (), glowbugs@theporch.com
Subject: Re: Regenerative Design
Message-ID: <9610071513.AA106137@csemail.cropsci.ncsu.edu>

>
> Good Morning Bob et. al.

>
> Thanks for the info on putting together a selective toob type regen. Since
> that posting, I've been poring over various old (Doerle) and more modern
> regen schematics and info in ARRL and other pubs. I have a couple of
> questions which I hope you and the other members of the list can answer.
>
> 1. Older schematics (Doerle) use three coils in the detector circuit: an
> antenna link, an input tank, and a tickler. More modern schematics use a
> single coil with taps for the antenna and tickler. (ARRL How to Become a
> Radio Amateur ca. 1959). I can see that the tapped coil design might be
> easier to construct, but does either design offer distinct advantages/
> disadvantages of these designs in terms of sensitivity, selectivity,
> and stability (S3)?

Generally, a single coil design will tend to be loaded down, and less selective, unless you use extremely light coupling into the grid tank.

Generally, a triple winding coil design or a primary/secondary design will offer better selectivity, if properly done, than a single coil design.

Generally, a non-tickler, single coil design is used with higher plate voltages and multigrid tubes.

Generally a tickler system is used with lower plate voltages and triode tubes, although that is not an absolute.

The use of more than a single winding coil will increase the complexity of the design, compared to a single winding tapped coil. Most of the later designs were for ``simple'' receivers and not optimized receivers.

In a ``best of all possible worlds'' design, I would opt for a system that had a) a fully tunable primary circuit, b) a loosely, but variably coupled secondary circuit, and c) a variable tickler circuit with proper throttle condenser fine control. Since I prefer to run at lower plate voltages, the use of a resistive system is less effective than a real tickler/throttle condenser system, and it may require more fiddling to get taps and biasing resistor networks set correctly.

> 2. Regens are noted for radiating signal from the oscillating detector back
> to the antenna. Is there any way to eliminate this short of adding a tuned RF
> section in front of the detector? If not, is there any way to keep the amount
> of re-radiated signal down where it will offend no one?

All regens will radiate unless they have an RF stage in front of the detector. Even then, they might still be heard in the same shack, without good shielding.

But, it should be noted that the level of radiation is quite low on average,

and very low on a tickler system with loose coupling and a plate voltage of less than 50 volts.

Example: I use a single tube baby regen sometimes, for playing with the locals, and it has a 36 volt triode detector using a 1 turn link at the cold end of the tank coil. When on the edge of oscillation, it will radiate a signal, when hooked up to a full sized antenna, that can be heard by a neighbor ham with a big antenna farm and hot Ten-Tec gear, at a range of about 500 meters. Another ham, running almost identical gear and antenna system, about 2000 meters away, cannot hear the regenerator, at all, yet we QSO regularly on a companion Hartley running 96 volts on the plate at about 450 mw output. It would appear that the few microwatts out from the regen detector is not of much significance, even locally, until one gets very close by.

The best way to keep the detector output out of the antenna is LOOSE COUPLING. Keep the coupling loose, the plate voltages low, and the detector on the ragged edge of oscillation. That will minimize any potential local interference. It will also increase selectivity, greatly.

> 3. How will the use of a tuned RF section in front of the detector affect > receiver S3?

The RF stage will increase immunity to close by signals to some extent by providing some isolation. It will not materially affect sensitivity, selectivity, or stability on a proper detector. It will, by means of the isolation, stabilize a poor detector by providing it a constant loading, and increase the relative sensitivity by providing some gain. On a proper detector, that is already well shielded, well uncoupled, and stable, the effect is nil.

> 4. Some designs use a variable capacitor to control regeneration.
> Others use a variable resistor and control regeneration by varying detector
> plate voltage --- again, simpler and more repeatable construction.
> Both methods are mentioned in older ARRL handbooks. Are there any S3
> performance advantages to either method?

It usually depends upon one of two things. First, is the plate voltage high (greater than 50 volts) or low (less than 50 volts). Second, is the noise of the resistor biasing system acceptable or not. In the case of plate voltages, I usually use lower voltages, and at lower voltages the control is not good enough in my hands to warrant resistor control. A throttle condenser is much smoother in action at lower voltages than the resistor control. In the case of noise generation, the potentiometer methods all will generate significant detector noise, even with good bypassing and isolation by means of chokes and bypassing networks (resistor/capacitor bypass networks). The throttle condenser method is totally noiseless unless the shaft on the capacitor is grinding. There is no real sensitivity,

selectivity, or stability factor involved here, just ease of setting the regeneration and noise generation.

The RAL is the epitome of regen receiver designs. It uses a rather high plate voltage of 180 volts, dropped to 90 volts on the detector by a resistor string or by an external voltage regulated line on the original power supply. It uses a rather fine resistor control of the 6D6 detector tube, but also uses good bypassing and isolation to prevent detector problems. Even then, you can hear the regen control noise, very slightly. None of my throttle condenser receivers have any such noise from the regen control. That is not usually a problem, though, since the regeneration control is usually set once on the bottom of a band and left there. If you like to ride the regeneration control for absolute maximum selectivity and sensitivity, then the noise in the resistor is a small bit of hassle. In this case the throttle condenser is much to be preferred.

One can combine a resistor control to set the relative regen value and then fine tune the regeneration with a throttle condenser. I do that but use a variable tickler and throttle condenser to accomplish the task, although a resistor control and throttle condenser would work equally well.

> 5. Svetlana makes a nice little 6BM8 dual pack triode/pentode, and an equally
> neat 6AS7 dual triode -- both intended for high performance audio service.
> Spec sheets are available on the net at www.svetlana.com. Has anyone build a
> receiver around either of these tubes? (If not, I might like to try! -- It
> looks like they're just made to power a high-perfomance glow-bug receiver.)

They should all work fine. I have used the 6AS7 as a detector and it works just like the 6SN7, but as a more powerful detector. It also makes a fine Hartley oscillator tube when both sections are paralleled.

The 6AS7 is plugin compatible with the 6SL7/6SN7/6080/6336, etc., but rated at about 7 watts in Hartley use. It is a low voltage tube and probably will work best on less than 90 volts on the plates. It can run 350 volts at 200ma if you push a little and the biasing is correct ---- ouch. It will make a fine Hartley oscillator or detector on as little as 12 volts on the plates.

Although multtube bottles are very workable in regen designs, I tend to like to keep the detector separate from the audio sections, so would opt for separate tubes. Also, my fingers and 100 watt soldering gun don't take easily to mini tubes and mini tube sockets. I much prefer octal or larger basing.

For a triode, I would prefer something like a 27, or a 76, or a 6J5. You can wire multiple tubes in one bottle together, as one triode. They are also good for transformer coupled audio. Generally, only one audio stage is needed if transformer coupled, but it is sometimes of

benefit to have two audio stages if running lower plate voltages such as below 50 volts. Also, the use of audio transformers is of goodly benefit if they are tuned with proper capacitors on the inputs and outputs so that a very selective audio filter system is had, tuned to whatever is your favorite headfone frequency.

For tetrode/pentode/beam tubes, anything up to an 807 has worked in my hands as a regenerative detector. Steve, in Texas made a good working regen set out of a single 833 tube.....(Steve, you still listening?). I made a very good regen receiver out of a pair of 6V6's running 12 volts on the plates using a 10h impedance coupling choke and an audio output from an old tube radio to 8 ohm fones.

Hmmmm, I gots this 'ere 849 tube thots me wan't ta make sumthin' outta.....

> Thanks in advance for the discussion. If there is enough interest, I'll be
> more than happy to archive the information and forward the archive to anyone
> with an interest.

It would probably be of interest to folks if someone were to put all this muckety muck together into one file.

> Forrest B. Snyder, Jr.
> N4UTY fbsnyder@mitre.org
> "Radio in the rough!"
> BC-348-R
> Johnson Adventurer (Rock bound!) and a straight key
> 40 M Center-fed Zepp between two trees

73/ZUT DE NA4G/Bob UP

Date: Mon, 7 Oct 1996 12:03:45 -0400 (EDT)
From: rdkeys@csemail.cropsci.ncsu.edu
To: glowbugs@theporch.com, boatanchors@theporch.com
Cc: rdkeys@csemail.cropsci.ncsu.edu ()
Subject: BA/GB net frolics this weekend
Message-ID: <9610071603.AA106206@csemail.cropsci.ncsu.edu>

Well, Friday was a bit dead, but the usual crew was there from east of the Rockies, and WS4S kept the brass hot until well past midnight. That was one of the longest CW QSO's I have had in a great while --- 3 hours of hot 'n heavy BA discussions. The contacts on the bug were warm! Saturday was much better, with a good cold snap heading south, and a lot of folks were there, some not heard since last year. Grandma Hartley was up and running at 2 watts and made a few QSO's. So, glad all you

BA/GB folks wats burned them thar ether holes this fine weekend were able to join in. The DEEX were also up, since EU stns were 579 on 80, no less. 160 was fair, but I need to get the long wire up again for that. Hurrycane Fran knocked that down. Will look fer another goodly crew aboard the watch again, tonght. 73/ZUT DE NA4G/Bob UP

Date: Mon, 7 Oct 1996 12:17:36 -0500
From: Guy Dragoo <gdrag@proedge.com>
To: "'Multiple recipients of list (Boatanchors)'"
Subject: WTB 6L6's
Message-ID: <01BBB44A.533CE560@ft251.computeek.net>

Hi all,
I'm looking for some 6L6's for a homebrew xmitter.
Pulls are fine as long as they test out OK. Hollar with ur pricing and quantity available as I will probably need a few extra for that inevitable mistake or two :-(
thanks and 73
Guy Dragoo AC5HL

Date: Mon, 7 Oct 1996 13:59:43 -0400 (EDT)
From: rdkeys@csemail.cropsci.ncsu.edu
To: glowbugs@theporch.com
Cc: rdkeys@csemail.cropsci.ncsu.edu ()
Subject: BA/GB 1 Watte Challenge at Highe Midnighte
Message-ID: <9610071759.AA106274@csemail.cropsci.ncsu.edu>

For funzies, I challenge all ye fine Glowbuggites to cobble something together fer duelling at under 1 watt at ``High Noon'' er make that Highe Midnighte (0400Z) on the 80M TV rock frequency of 3579R545KHZ. Anything be accepted, as long as it has hot/hollow/gaseous emanations into the ether and glows somewhat in the dark --- spark sets not allowed, currently.....(:+{}..... West coasters can try 0700Z fer their round. Middle westerners can join the east/west o' de continental divide as they sees fits.

Ol' Grandma Hartley, the ugliest thing since sliced bread, albeit a fine tempered grand dame, seemed to do well on 2 wattes de exhalations this weekend, so mebbe there is hope for a peanut whistle, after all! Her youngest harmonic, Lil' Baby-Cakes Hartley, may be sneaking a peek in the shack, tonight, to see howse it be done.....(:+{}.... Lil' Baby-Cakes only has a mittlin DX o' 100 miles so far, an' needs some careful larnin'. An' she aint been properly introduced to open wire line kiddies yet.

So, fer de rest o' dis 'ere week, keeps High Midnighte open fer peanut whistles, in the ether..... in additions ta yer standard BA/GB funzies.....

73/ZUT DE NA4G/Bob UP

Date: Mon, 7 Oct 1996 08:42:00 -1000
From: Jeffrey Herman <jherman@hawaii.edu>
To: Brian Carling <bry@mail1.mnsinc.com>
Subject: Re: glass qrp
Message-ID: <Pine.GSO.3.93.961007083937.27725C-100000@uhunix3>

Brian: There's nothing wrong with the GB list. Unlike QRP-L, TopBand, BA, TenTen, et al, the activity on GB comes in spurts. An entire week can go by and no one might have anything to write about. That's why it's a good idea to also sub to BA - that list is always active.

7.3W,
Jeff KH2PZ / KH6

Date: Mon, 7 Oct 1996 13:49:20 -0500
From: "Claton Cadmus" <aplitech@Spacestar.Net>
To: "Multiple recipients of list" <glowbugs@theporch.com>
Subject: Re: Regenerative Design
Message-ID: <199610071849.NAA32662@Spacestar.Net>

> It would probably be of interest to folks if someone were to put all this
> muckety muck together into one file.

It sure would be if interest to me. I missed most of the beginning of the thread as I've recently joined on.

Presently, I'm collecting parts to build/model a 1935~ Home-brew Ham Station. I've looked at some designs in old ARRL Handbooks and I'm considering a Regen. This rig won't be a replica, just model the style. Breadboard old tubes and parts etc. But I'm all for using newer ideas to improve the performance. I even considered a direct conversion design receiver, but I think getting enough gain would be difficult.

Any suggestions welcomed.

Claton Cadmus | 73 de KA0GKC
Application Technologies Inc. | ARRL, QRP-ARCI, NorCal
Ph. (612)926-8886 | ARCC, MNQRP&HB Society
Fax (612)926-8545 | ka0gkc@ka0gkc.ampr.org
E-mail cla@spacestar.net | ka0gkc@wb0gdb.#stp.mn.us

Date: Mon, 7 Oct 1996 13:40:52 +0000
From: "Brian Carling" <bry@mail1.mnsinc.com>
To: Guy Dragoo <gdrag@proedge.com>, glowbugs@theporch.com
Subject: Re: WTB 6L6's
Message-ID: <199610072039.QAA08289@user2.mnsinc.com>

I'm also looking for some.
I have one here, and no idea if it is any good.

Let me know please!

Hey, looks like glowbugs is working nicely again now!

Bry AF4K

> Date: Mon, 7 Oct 1996 12:23:29 -0500 (CDT)
> Reply-to: gdrag@proedge.com
> From: Guy Dragoo <gdrag@proedge.com>
> To: Multiple recipients of list <glowbugs@theporch.com>
> Subject: WTB 6L6's

> Hi all,
> I'm looking for some 6L6's for a homebrew xmitter.
> Pulls are fine as long as they test out OK. Hollar with
> ur pricing and quantity available as I will probably need
> a few extra for that inevitable mistake or two :-(
> thanks and 73
> Guy Dragoo AC5HL
>
>
>

Brian Carling in Gaithersburg, Maryland, USA
bry@mnsinc.com
<http://www.mnsinc.com/bry/>

End of GLOWBUGS Digest 315
